

What Is Your Diagnosis?

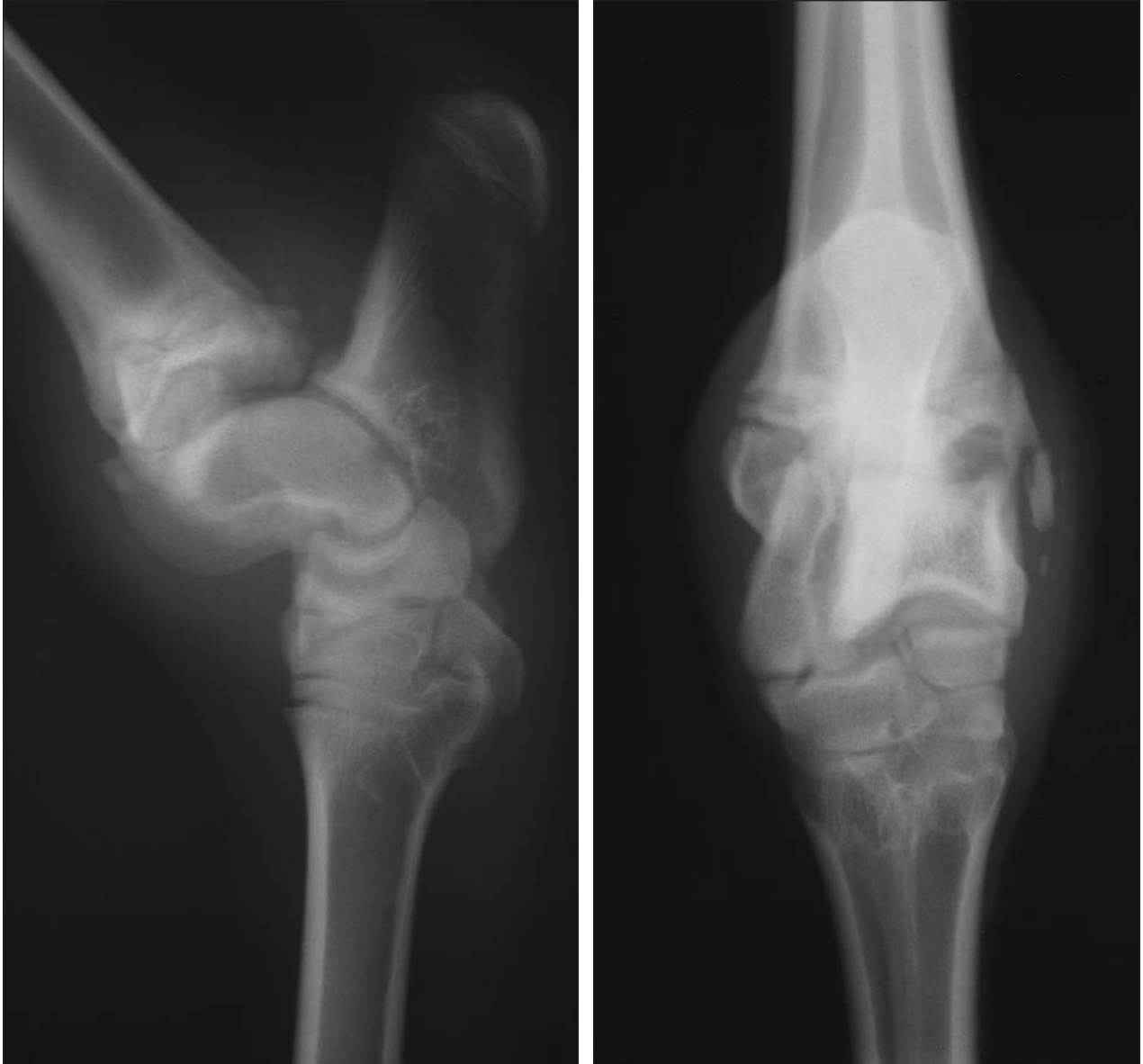


Figure 1—Lateromedial (left) and craniocaudal (right) radiographic views of the right tarsus of a 5-month-old llama with a right hind limb lameness.

History

A 5-month-old male llama was evaluated because of a 2-week history of right hind limb lameness of acute onset. The cria would walk and use the right hind limb. However, this required appreciable effort, and the cria was able to bear weight on the affected limb only for brief periods. On physical examination, there was pronounced soft-tissue swelling associated with the right tarsus. An audible clicking was evident when the tarsal joint was flexed and extended, but this did not elicit signs of pain. Radiographs of the right tarsus were obtained (Fig 1).

Determine whether additional imaging studies are required, or make your diagnosis from Figure 1—then turn the page ▶



Figure 2—Same radiographic views as in Figure 1. The talus is rotated dorsally 90°, orientating it in a horizontal rather than vertical position (large curved arrow). The distal articular surface of the tibia articulates with the caudal aspect of the talus rather than the trochlea. Soft-tissue swelling is evident surrounding the talocrural joint. Multiple bony opacities are apparent caudal to the distal tibial epiphysis, distal to the medial malleolus, and dorsal to the distal epiphysis (arrow heads).

Diagnosis

Radiographic diagnosis—Dorsal subluxation of the talus with bony opacities associated with the distal portion of the tibia (Fig 2).

Comments

The talus was rotated dorsally 90°, orientating it in a horizontal rather than vertical position (Fig 2). The distal articular surface of the tibia articulated with the caudal aspect of the talus rather than with the trochlea, and there was slight dorsal rotation of the calcaneus. The central tarsal bone articulated with the dorsal aspect of the talus. Soft-tissue swelling was evident surrounding the talocrural joint, and multiple bony opacities were detected caudal and dorsal to the distal tibial epiphysis and distal to the medial malleolus. These bony opacities may represent avulsion fractures secondary to trauma of the long and short medial collateral ligaments, chip fractures, osteochondral fragments, or dystrophic mineralization as a result of degenerative changes.

Bilateral dorsal rotation and subluxation of the talus has been reported in llamas.¹ In llamas, the talus is actually subluxated into a horizontal position; however, the human terminology has been used to describe the defect.^{2,3} In humans, it has been proposed that muscle imbalance associated with congenital neural tube defects and neuromuscular disorders underlie the development of congenital vertical talus.⁴

We obtained radiographs of the left tarsus of the llama, because the condition may be bilateral. Dorsal

rotation and subluxation of the talus were evident; however, clinical signs were restricted to those associated with the right hind limb. Moreover, bony opacities were not evident in the left talocrural joint. It is likely that the cria was lame on both hind limbs, but because of the avulsion fractures or degenerative joint disease in the right talocrural joint, lameness was more severe on that side and masking a milder left hind limb lameness.

Because of the abnormal joint articulations that develop with congenital vertical talus, progressive articular cartilage erosion and degenerative joint disease of the talocrural joint is an expected outcome. Eight months after the initial diagnosis, this llama was still lame on the right hind limb. Moreover, the owner reported that lameness and signs of pain associated with the left hind limb were now evident.

1. Johnson LW, Gentz EJ. Multiple nonlethal anomalies in a llama. *J Am Vet Med Assoc* 1990;196:630–631.

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3. Fowler ME. Congenital/hereditary conditions. In: *Medicine and surgery of South American camelids*. Ames, Iowa: Iowa State University Press, 1998;468–497.

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